

rounded, without any sinuation before base, angles rounded, front ones a little prominent, hind ones obtuse; a fine median line reaching extremities, transverse impressions obsolete, basal foveæ shallow, surface opaque, finely and densely granulate and pubescent, the pubescence inconspicuous.

Elytra (6.5 mm. long) oval, narrower and more pointed at apex in ♂, rather flat on disk, opaque, border fine, rounded at shoulder, reflexed along sides, hardly sinuate before apex, punctulate-striate, intervals flat, finely but not very closely punctate, and inconspicuously pubescent; the testaceous spot, which is divided by the suture (red at this point), small, more or less rectangular, covering three intervals on each side of the suture, the colour extending a little nearer apex on interval 1; scutellum shagreened and indistinctly punctate.

Underside highly iridescent, shiny, sparsely punctate, and pubescent, prosternal process not bordered, metepisterna not much longer than wide; tarsi pubescent on upper surface.

Closely resembling *C. guttula*, Chaud., but larger, the common spot a little larger, more angular, and further from apex; head wider, less closely rugose, prothorax more coarsely granulate, striae of elytra deeper and more evidently punctate.

Assam: Naga Hills, Assam Valley, Manipur (all *Doherty*), 1 ♂, 6 ♀ ♀.

British Museum.

II.—*The Myth of the Ship-holder: a Postscript.* By E. W. GUDGER, American Museum of Natural History, New York City.

IN the issue of this Journal for October 1918 I published a paper of some length on this myth\*. While that paper was going through the press I chanced upon some additional data bearing on this subject and its explanation, and it has seemed worth while to present it here in abbreviated form in the hope that it may prove of interest to readers of the first paper. It is all the more interesting because three of the writers quoted approximated the true explanation.

The first of these old writers is Jerome Cardan, mathematician, naturalist, and several other things beside. In

\* Gudger, E. W., "The Myth of the Ship-holder: Studies in Echeneis or Remora.—I." *Ann. & Mag. Nat. Hist.* 1918, ser. 9, vol. ii. pp. 271-307, 3 pls. with 9 figs., 1 text-fig.

his book\*, published at Basilæ in 1557, his description of the ship-retarder, which he denominates *Mustela marina*, is very inexact; but when he says that it has seven round openings on each side of its neck, we recognize it as a lamprey-eel. The interesting thing in his account is his recital of a voyage on the Liger River in the spring, when seven large specimens were detached from the prow of the boat, where they acted as very effectual remoras—delayers. In this account Cardan effectually corroborates Rondelet †, who says that he has seen a lamprey-eel attach itself to a boat and actually retard its progress. Both these ancients in turn are corroborated fully by one of the most distinguished ichthyologists of the present day, Mr. David G. Stead, of Australia ‡, who tells of an instance coming under his own observation of a vessel in tropical waters being actually “considerably delayed through a school of ‘suckers’ attaching themselves all round its sides and bottom.”

Next we come to the old Jesuit, Athanasius Kircher (1643), who goes very carefully into the matter of the ship-holder. Not to weary the reader, the gist of Kircher’s dissertation is to be found in the following paragraph. He contends that the explanation of the retardation of ships by a fish is as fabulous as that this is due to magnetic rocks, and goes on to offer the following explanation of his own:—

“Nevertheless I do not deny that ships in their course do stand still. But I do not think to ascribe this to any occult quality, nor to any virtue derived from heaven, nor to any fantastic cause whatever, but to contrary upheavals or currents in the sea. For unless I had observed such a happening myself, I would myself scarcely believe that which I am going to set forth. Truly it happens not infrequently in the Strait of Sicily that a huge ship with all sails set to a following wind sticks fast in the middle of the sea as if she had been affixed to a spike in a beam, the other ships in the neighbourhood holding their courses. This I allege not only on the testimony of my own eyes, but of that of the inhabitants of Messina, who frequently enjoy this spectacle. In like fashion the imperial fleet of Anthony at the battle of Actium was detained in the narrows of the Archipelago. This I would ascribe to the currents and

\* Cordano, Girolamo. ‘Hieronymi Cardani Mediolanensis Medici de Rerum Varietate Libri XVII.’ Basilæ, 1557, chapter 31.

† Rondelet, Guillaume. ‘L’Histoire Entière des Poissons.’ Lion, 1558, p. 313. The original edition of this great work was published in Latin in 1554.

‡ Stead, David G. ‘Fishes of Australia.’ Sydney, 1906, pp. 190-191.

eddies which are everywhere met with in straits. For it can scarcely be said how much eddying in the sea, how many [opposing] currents would be strong and powerful enough to cause ships to stand. This is, indeed, my idea of the Remora”\*.

We now come to that man of the Renaissance writers who most thoroughly and in scientific fashion goes into a study of the ship-holder. This is the Jesuit, Gaspar Schott, professor in the gymnasium of Herbipoli. His scientific attitude is first shown in his extensive review of his predecessors, where he expressly quotes them by book, chapter, and paragraph, and in this he is about as exact as a present-day writer who takes pride in the care with which his bibliography is prepared †.

Schott carefully dissects the writings and opinions of his predecessors, and, while acknowledging that vessels are stopped, rejects their explanations as depending on some occult power or cause or quality. He then sets forth his own conclusions under four heads and in as many distinct paragraphs. First, he thinks it doubtful if such a remarkable power of detaining and retarding ships is to be found in such a small animal. He notes that there are no eye-witnesses among the ancients, but that their accounts run “it is said,” “some believe,” “it is reported.” In short, there is no agreement among the ancients, and their accounts are mere fables.

Having thus established himself as a disbeliever, Schott, in the next paragraph, affirms his belief in the occult and the supernatural. Since so many writers record them, there must be truth in these accounts, and it must be acknowledged that the ships are retarded, but from causes different from the assigned ones. These retardations, he thinks, are due to angels—good or bad,—to frauds on the parts of sailors (some backing, others pulling), or to upheavings and boilings in the sea. These latter, on the whole, he thinks to be the more probable causes.

In his third paragraph Schott affirms his belief in extraordinary tides and currents which arise at times to retard the progress of the weakly propelled vessels of his day. He quotes Kircher’s experience in the Straits of Sicily. This

\* Kircher, Athanasius. ‘Athanasii Kircheri Magnes Sive de Artis Magnetica, Opus Tripartum.’ Colonie Agrippinæ, 1643. Liber tertius, pars sexta, De Echeneida, seu Remora, p. 669.

† Schottus, Caspar. ‘Physica Curiosa sive Mirabilia Naturæ et Artis Libris XII.’ Herbipoli, 1662. Caput XIV. Dissertatio Physiologica de Echeneide seu Remora, pp. 1309-1338.

he had confirmed by the inhabitants of Messina and likewise by a personal experience in those waters. Next he argues that similar detentions have been known in similar regions, but that, unlike the ones more or less regularly occurring, though at different hours, in the Sicilian Straits, they occur irregularly and at intervals only—in short, were temporary and due to temporary and unusual causes. These causes, he thinks, were earthquakes or submarine disturbances of some kind which produce large and conflicting waves, this being in accordance with Kircher's experience when he was once returning from Melita to Rome.

Lastly, Schott comes to the conclusion that the retardation is due to the little fish rightly called remora, but that it does not do this by virtue of any occult quality, since when taken into the vessel the latter is no longer necessarily stopped in her course—witness the vessels of Caligula and the Cardinal of Tours (see pages 276 and 284 of previous paper). When it lays hold of a vessel and opposes its propulsion it acts in the same way that a man does when he prevents gravity from drawing a body downward.

Both Kircher and Schott had a glimmering idea of the truth, each wanted to break away from ancient tradition and give a rational explanation; but the axiom that action and reaction are equal not having been established in their day, they apparently took refuge in jesuitical fashion in a flood of words. However, it is true that, in their conflicting currents or boilings in the sea, they approximated the true explanation as set forth by Ekman\* in 1904. For this see my larger article.

The last author to be quoted in this paper is a compatriot of Ekman's, the famous Bishop Pontoppidan † of Norway. He quotes Schott, that "Among other reasons that are given for a ship's being stopt in her course in the middle of the sea, tho' under full sail with a good wind, which is an undeniable fact, he reckons, the conflux of rivers from several places struggling together, to be one cause." This translation I am unable to get from Schott's Latin; but doubting my own rendition, I had a translation made by an expert in Romanic languages. This agreed with mine very closely, but not with the good Bishop's.

Possibly this translation represents an embryonic idea in

\* Ekman, V. Walfrid. 'On Dead-Water.' Vol. V. Scientific Results Norwegian North Polar Expedition, 1893-1896. Christiania, 1904.

† Pontoppidan, Erich. 'The Natural History of Norway.' London, 1755, pp. 216-217.

the Bishop's own mind, for he continues (see above): "This opinion has some probability, and that strange effect is really owing to this cause in some places." But, being under the thrall of the Kraken, the gigantic cephalopod which, like "Dead Water," abounded in the fiords of his country, he finally concludes that it, under the name Kors-Trold or Soe-Drawl, is the effecting agent in ship-detention.

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III.—*Systematic Notes on a few Melolonthine Coleoptera.*  
By GILBERT J. ARROW.

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[Plate I.]

THE following descriptions and notes have been put together in the course of working out the nomenclature of certain species of Melolonthinæ injurious to crops in different regions. The types of the species described as new are in the British Museum.

In his 'Report on *Phytalus smithi*, Arrow, and other Beetles injurious to Sugar-cane in Mauritius' Mr. d'Emmerez de Charmoy refers to certain Lamellicorn beetles to which no precise names could be given. These were subsequently sent to me for identification, but, owing to uncertainty as to whether they were imported or indigenous, I deferred their determination at that time. Having failed to obtain sufficient evidence of their occurrence elsewhere, I have now described them, their economic importance rendering the absence of recognized names highly inconvenient.

In the Report above mentioned the name *Gymnogaster bupthalma*, Bl., is applied to certain cane-feeding grubs. The beetles sent to me as probably belonging to that species are two different forms, both of them apparently unnamed hitherto. *G. bupthalmus* is an inhabitant of the island of Bourbon, and in all probability is not found elsewhere. Although it has a close superficial resemblance to the insect I here call *Rhizotrogus pallens*, there are important anatomical differences in the reduction of the biting parts of the mouth and the existence of five, instead of three, joints in the antennal club. No other species of *Gymnogaster* is known.